

when viewed vertically are more smoothly continuous. This result seems to be attained by a crushing together of the elements of the teeth, and consequent obliteration of the normal structure.

In old specimens with worn teeth these characters are not readily perceptible, but another and still more striking one becomes then available, namely the number of the molar roots, which in a hypsodont animal only become visible in old age.

The molars of old specimens of both *Akodon* and *Zygodontomys* show on their inner aspect the following roots:— m^1 , one root under the anterior lamina and one broad one supporting both the second and third laminae; m^2 , one broad root under the two laminae; m^3 , one root. In *Scotinomys*, on the other hand, every lamina of each tooth has its separate supporting root, so that on the inner side there are three in m^1 , two in m^2 , and two (less distinctly separated) in m^3 . This number of roots I fail to find in any of the allied genera.

Type. *Scotinomys teguina* (*Hesperomys teguina*, Alst.). Other described forms: *S. teguina apricus**, Bangs, *S. xerampelinus*, Bangs, and *S. irazu*, Allen.

XLVII.—A Revision of the Asilidæ of Australasia.

By GERTRUDE RICARDO.

[Continued from p. 166.]

BLEPHAROTES, Westwood in Duncan.

The Natural Libr. xxviii. p. 329 (1840).

Blepharis, Macq., Dipt. Exot. i. (2) pl. viii. fig. 1 (1838) [præocc. Cuv. Pisc. 1817; Serv. Orth. 1831].

Craspedia, Macq., Dipt. Exot. i. (2) p. 198 (1838) [præocc. Hübn. Lepid. 1816].

Psecas, Jænn., Abhandl. Senckenb. naturf. Ges. vi. p. 359 (1867).

The following species have been described and one new species is added:—

Blepharotes coriarius, Wied., Auss. zweifl. Ins. ii. p. 644 [*Asilus*] (1830); Macq., Dipt. Exot. i. (2) p. 198 [*Craspedia*] pl. viii. fig. 1 [*Blepharotes*] (1838); Erichson, Archiv f. Naturgesch. vii. 2 (1841); Schiner,

* Possibly an *Oryzomys* of the *Melanomys* section, in spite of its strong resemblance to *S. teguina*.

- Verh. zool.-bot. Ges. Wien, xvi. p. 690 [*Craspedia*] (1866); Loew, Zeitschr. f. d. ges. Naturwiss. N. F. x. (xliv.) 75 (1874); Froggatt, Australian Insects, p. 300 [*Craspedia*] (1907).
- Blepharotes splendidi-simus*, Wied., Auss. zweifl. Ins. ii. p. 645 [*Laphria*] (1830); Guérin, Icon. d. Règne Anim. vii. Ins. p. 536 nota [*Laphria*] (1835); Schiner, Verh. zool.-bot. Ges. Wien, xvi. p. 694 [*Craspedia*], et xvii. p. 383 [*Craspedia*] (1867); Loew, Zeitschr. f. d. Ges. Naturwiss. N. F. x. (xliv.) p. 75 (1874).—*Blepharotes abdominalis*, Westw. apud Duncan, The Nat. Libr. xxviii. p. 329, pl. xxxv. fig. 1 (1840).—*Craspedia audouinii*, Macq., Dipt. Exot. i. (2) p. 100 (1838).—*Psecas fasciatus*, Jænn., Abhandl. Senckenb. naturf. Ges. vi. p. 360, pl. xlv. fig. 2 (1867).
- Blepharotes vivax*, Hermann, Zeit. Hymen. et Dipt. vii. i. p. 76 [*Craspedia*] (1907).
- Blepharotes aterrima*, Hermann, l. c. [*Craspedia*] (1907).
- Blepharotes flavus*, sp. n.

The genus was established by Macquart for *Asilus coriarius*, Wied., and is peculiar to Australia and New Guinea. It is at once distinguished by the very broad abdomen adorned at the sides by bushy tufts of hairs and by the short terminal style of antennæ. The species described by Loew as *B. macrostylus* I have placed in a new genus, *Pararatus*, as, owing to the form of the female ovipositor, it could not possibly be included in this genus.

In neuration of the wing *Blepharotes* is allied to *Pararatus*, *Neoaratus*, and *Asilus in sensu stricto*; its place among the other genera appears doubtful. For the present I have followed Schiner, and placed it at the head of genera with antennal bristle bare.

Blepharotes coriarius, Wiedemann.

Specimens of this species, male and female, are in the Brit. Mus. Coll. from W. Australia (*Fyson*), Melbourne, and Moreton Bay, and in Mr. French's Coll. from Dandenong Ranges, Victoria. Mr. Froggatt states that the species is widely distributed all over the interior of the continent, and can often be seen flying about with its beak buried in the back of a large cockchafer beetle, its long legs clasping its victim and sucking its blood.

The species is distinguished by the red colour of the abdomen, sides fringed with black tufts of hairs, white hairs appearing on the second, fifth, and sixth segments; underside black, with white pubescence. *Palpi* often have white hairs intermixed with the black ones. Fore femora armed with spines as well as the posterior ones.

Length, ♂, 27 mm.

Blepharotes splendidissimus, Wiedemann.*Blepharotes abdominalis*, Westwood.*Craspedia audouini*, Macq.*Psecus fasciatus*, Jænn.

Type of *C. audouini* seen in Paris Museum, 12. 4. 11, from Moreton Bay. Its identity with the Wiedemann species is correct.

Specimens of this species, males and females, are in the Brit. Mus. Coll. from Victoria, Moreton Bay, and Burpengary, S. Queensland (*Bancroft*), and in Mr. French's Coll. from Dandenong Ranges, Victoria. Mr. Froggatt remarks he has frequently captured this species flying about the Botanic Gardens, Sydney, in early summer.

The species is distinguished by the dark brown *wings* and black *abdomen*, the segmentations narrowly rufous; sides with black tufts of hairs.

Length from 25 mm.

Blepharotes vivax, ♀, Hermann.

From New South Wales.

Is described as allied to *B. coriarius*, but is smaller, and distinguished by brighter markings of the *thorax* and by the black *wings* with violet reflections.

Length 25 mm.

Blepharotes aterrima, ♀, Hermann.

From Dutch New Guinea.

Is described as black, sides of *thorax* with long yellow hairs. *Wings* very dark-coloured, with violet reflections.

Length 35 mm.

Blepharotes flavus, sp. n.

Type (♂) from Mackay, Queensland (*Turner*), and another from Townsville, Queensland (*F. P. Dodd*).

Type (♀) and another female from Burpengary, Queensland (*Dr. T. L. Bancroft*), and a male in Mr. French's Coll. from Victoria.

This species is nearly related to *B. coriarius*, Wied., but is distinguished by the lighter-coloured *abdomen*, which is yellowish, not deep fulvous red; the *wings* are usually rather paler, and the size of insect is smaller, the *abdomen* not so broad; the white hairs on the sides of this latter are present on each segment except the last two, not only on the third

and sixth as in the Wiedemann species. A tuft of white hairs is present on the *forehead*, which is usually absent in *B. coriarius*, and the white hairs on the coxæ are chiefly limited to the anterior pair. It is distinguished from *B. vivax*, Hermann, by the absence of any bright colouring on the *thorax*, and the *wings* are lighter, not black with violet reflections; the *abdomen* also paler.

Male.—*Abdomen* pale yellow, rather narrow compared with those of other species of this genus, bordered by black tufts of hair, with which white hairs are intermixed below.

Length 30 mm.

Face black, covered with yellowish tomentum, and with long pale yellow bristles forming the monstache, chiefly confined to the oral opening. *Palpi* with black hairs. Beard white. *Antennæ* black, the third joint long, with a short bristle. *Forehead* with black pubescence, and a tuft of white hairs anteriorly on each side. Hind part of head with long white hairs and some shorter black hairs at vertex. *Thorax* black, with some grey tomentum on dorsum; sides with black bristles and grey tomentum; breast black, with grey tomentose stripes. *Scutellum* dark brown, with black bristles. *Abdomen* with the first segment black, with black hairs, the remaining ones pale yellow, the posterior borders paler; the white hairs at sides are below the black ones and most apparent on the fourth, fifth, and sixth segments; underside dark brown, with chiefly black pubescence. *Legs* black, femora armed with black bristles, the pubescence on the fore coxæ long, yellowish white; a few are visible on the other coxæ, otherwise their pubescence is black. *Wings* dark grey, with reddish-yellow veins, the posterior branch of fork strongly curved, the second posterior cell wide, almost touching the former vein at one place; the third posterior very wide, twice the width of the second at its widest part; the fourth posterior closed, the anal closed near the border; the small transverse vein about the middle of the discal cell, which is long and narrow.

Female.—*Abdomen* is darker yellow and broader, not so glabrous as is that of *B. coriarius*; the white hairs at sides are more apparent than in the male. Ovipositor blackish, short, not compressed at sides.

Length 35 mm.

PROMACHUS, Loew.

Lin. Ent. iii. p. 390 (1848).

Bactria, Meg., in litt. apud Meig.

Telejoneura, Rond., Archivio per la Zool. iii. p. 48 (1863).

Trupanea, Macq., Dipt. Exot. i. (2) p. 207 (1838) [præocc. Schrank, Dipt. 1803].

The following species have been described as from Australia and Tasmania :—

Promachus grandis, Macq., Dipt. Exot. i. (2) p. 217 [*Trupanea*] (1838).

Promachus clausus, Macq., l. c. Suppl. i. p. 208 [*Trupanea*] (1846).

Promachus tasmanensis, Macq., l. c. Suppl. ii. p. 55 [*Trupanea*] (1847).

Promachus rufipes, Macq., l. c. Suppl. iii. p. 186 [*Trupanea*] (1847).

To these species is now added :—

Promachus interponens, Walker, Proc. Linn. Soc. London, v. p. 280 [*Trupanea*] (1861), described from I. Batjan, but now found in N.E. Queensland.

Promachus doddi, sp. n.

Promachus floccosus, Kirby, Trans. Ent. Soc. London, 1884, p. 273 (1884); Hutton, Trans. New Zealand Instit. xxxiii. p. 21 nota (1901), was omitted by Hudson from his list of New Zealand Diptera, as he believed there was a mistake in the locality and that the type came from Opobo, W. Africa, there being no such place in New Zealand. The type, a male, is labelled "Opabo, New Zealand, H. W. Marsden, 1880," and is apparently a specimen of *Promachus fasciatus*, Fabr.

Promachus grandis, Macquart.

Type, seen by me in Paris Museum, 12. 4. 11, in a very bad state; abdomen almost wholly destroyed.

Macquart describes it thus :—

Black; face and moustache yellow; beard white. Tibiæ chestnut-coloured. Wings brown.

Length 12 lines.

Epistome bordered with black bristles. Forehead with brownish tomentum. Thorax (denuded), sides with brownish tomentum. Abdomen with indistinct blue reflections; sex indistinguishable, owing to its state. Tibiæ and tarsi with yellow tomentum below. Wings with violet reflections.

From New South Wales.

But the type I saw has the wings greyish, veins yellow, with a pale streak on the fore border, the fourth posterior cell closed, the small transverse vein situated at the middle of discal cell. Face broad, covered with golden-yellow tomentum and some yellow hairs at sides. Moustache of yellow bristly hairs reaching halfway up the face, below at the sides there are stout black bristles. Palpi with black

bristly pubescence. *Antennæ* blackish, the third joint wanting. *Legs* very stout, black; femora incrassate, with black spines; tibiæ reddish, with black spines and some short, appressed, yellowish pubescence; underside of posterior tibiæ with thick bright fulvous pubescence, and some on the posterior femora.

Promachus clausus, ♂, Macq.

Dipt. Exot. Suppl. i. p. 208 [*Trupanca*] (1846).

Is described as a black species, the *abdomen* with white segmentations. *Wings* with the first posterior cell closed.

Length 9 lines.

Promachus rufipes, ♂, Macq.

Is described as an ashy-grey species. *Abdomen* with dorsal black spots. Moustache white. *Palpi* with black hairs. *Legs* red.

Length 10 lines.

The name is preoccupied.

Promachus tasmanensis, ♂, Macq.

Is described as ashy grey. *Abdomen* with dorsal black spots. Moustache yellow. *Antennæ* and *legs* black; tibiæ testaceous.

Length 10 lines.

Promachus interponens, Walker.

Co-types two females from Batjan.

Male and female from N.E. Queensland (*C. M. Kelsall*), 1910.

A robust blackish species, with reddish *legs*; the *abdomen* in the female with the first four segments broad, the remaining ones gradually tapering to a point, sides and segmentations ashy grey. *Wings* with a grey streak in the first submarginal cell.

Length of co-types 27–28, ♂ 26 mm.

Female.—*Face* blackish, with grey tomentum; a few yellow and black hairs below antennæ; the tubercle well developed, carrying the moustache, which consists of stout black bristles continued round the oral opening, with a few long white hairs intermixed. *Palpi* blackish, with long bristly hairs. Beard white. *Antennæ* black, the first two joints with bristly black hairs, third wanting. *Forehead*

with a row of black bristly hairs each side and some yellow hairs. Hind part of head armed with very stout black bristles. *Thorax* black, with grey tomentum; two black bristles above base of wings, four or more below, and others on posterior border of thorax, intermixed with black hairs; sides with grey tomentum and white pubescence. *Scutellum* as thorax, armed with a double row of bristles. *Abdomen* black, with narrow ashy-grey segmentations on the first four segments, uniting with the ashy grey sides, the pubescence pale yellow or white; the last three segments narrow, wholly black; the ovipositor black, as long as the last segment; underside ashy grey, with long white pubescence. *Legs* red, the femora largely black, only red below, the apices of the tibiæ and the tarsi wholly black; all the numerous bristles are black, pubescence on femora and tibiæ whitish, on coxæ white and long. *Wings* hyaline tinged with pale brown, the streak in first submarginal cell large and distinct; veins fulvous, the small transverse vein on basal third of discal cell.

Male.—Hairs intermixed in moustache are more numerous and pale golden yellow. *Antennæ* with some fulvous thick pubescence on lower side of first joint; the third joint with long terminal bristle. Beard and hairs on legs same colour as hairs of moustache. *Abdomen* narrower, the ashy-grey colour being replaced by the same golden-yellow colour present on all the posterior borders and sides of segments; genital organs black, prominent; red colour of *legs* more inclining to yellow.

Promachus doddi, ♀, sp. n.

Type (♀) from Townsville, Queensland (*F. P. Dodd*), and type (♂) and another and a female from Endeavour River, Queensland, in Mr. French's Coll., and other females from Burpengary, Queensland (*Bancroft*).

A large species with black oblong spots on the greyish *abdomen* reaching the anterior border of segments, but not attaining the side borders; *legs* reddish, with white pubescence, and moustache yellowish white.

Length, ♂ 25, ♀ 27 mm. (without ovipositor).

Face black, covered with whitish tomentum; the moustache above oral opening consists of strong yellowish bristles and some fine hairs intermixed, which latter are continued up middle of face to base of antennæ. *Palpi* in ♂ with a few long black bristles at the apex and whitish-yellow bristle-like hairs below, in the ♀ wholly whitish yellow. Beard

whitish. *Antennæ* brown, with black hairs on the first two joints, the third with a long bristle at end. *Forehead* black, covered with greyish tomentum, a row of black hairs next the eyes, and beyond these white hairs reaching to antennæ; back of head armed with black bristles and whitish hairs. *Thorax* covered with greyish tomentum, ground-colour brownish, with two distinct brown (♀), black (♂) median stripes; some very short, inconspicuous, black pubescence on dorsum; sides with black bristles and covered with grey tomentum below and white pubescence; thorax posteriorly and *scutellum* on its posterior border with black bristles, the latter black, with grey tomentum and some white hairs. *Abdomen* in ♂ stout, robust, appearing black on each segment, with the posterior borders and the sides grey, pubescence on dorsum chiefly black, at sides with thicker whitish pubescence; venter black, but covered with grey tomentum and with fine white hairs; genital organs black, with black hairs above and some white ones below; in the ♀ the black spots are smaller and more distinctly marked, the pubescence even on the black spot chiefly yellowish but shorter; ovipositor black, shining, with white pubescence below. *Legs* red, the coxæ, knees, and apices of tibiæ, and all tarsi black; posterior tibiæ more largely black, especially in the ♀; coxæ with long white pubescence; femora with white short pubescence, thickest on the posterior pair; bristles black, on the middle and posterior pairs with some yellowish ones on their lower borders; tibiæ with white pubescence and black bristles; tarsi with black pubescence and bristles, anterior pairs with some white pubescence. *Wings* hyaline, veins yellowish, small transverse vein below the middle of the discal cell.

This species differs from *P. rufipes* in having white-haired *palpi*, the black spots on *abdomen* not triangular, and in the femora and tibiæ being the same colour, with some white bristles, and the size of *P. rufipes* is only 20 mm.

A male from Endeavour River, Queensland, and a female, both in Mr. French's collection, differ from the above by having the moustache and the *palpi* of black and white hairs, and the femora have no white bristles; for the present they may be considered as only a variety of *P. doddi*.

The following species have been described from New Guinea and other parts of the Australasian Region:—

Promachus bifasciatus, Macq.; *P. uddens*, *complens*, *contradicens*, *gilolonus*, *transactus*, Wlk.; *P. inornatus*, Wulp;

P. albicauda, Wulp, *calorificus*, *concolor*, Wlk., from Celebes.

The type of *Promachus bifasciatus*, a female from Java, seen by me in Paris Museum, 12. 4. 11; the supposition that *P. strenua*, Wlk., is the same is correct.

PHILODICUS, Loew.

Lin. Ent. iii. p. 391 (1848).

The only species recorded from the Australasian Region is

Philodicus canescens, Walker.

List Dipt. vii. Suppl. 3, p. 608 [*Trupanea*] (1855); Kertész, Cat. Dipt. p. 218 [*Promachus*] (1909).

Type (♀) from New Holland.

A blackish species, with grey posterior borders on abdominal segments. *Wings* clear.

Length 21 mm.

Face covered with silvery-grey tomentum. *Moustache* of long yellow hairs. *Palpi* brown, with whitish hairs. *Beard* yellowish white. *Antennæ* black, the third joint wanting. *Forehead* with yellowish hairs at sides. *Hind part of head* with stout yellowish bristles and with white hairs. *Thorax* brownish, with grey tomentum on shoulders and sides, two narrow dark stripes on centre of dorsum, pubescence black; sides and breast with silvery-white tomentum; two stout black bristles above base of wings and numerous ones on posterior part of thorax. *Scutellum* covered with grey tomentum and with long white hairs. *Abdomen* long and slender, brownish black, with short greyish pubescence, the posterior borders of all segments grey tomentose. *Legs* black, with short grey pubescence, tibiae yellowish, all bristles black. *Wings* hyaline, greyish at apex; veins fulvous, small transverse vein below the middle of discal cell, fourth posterior cell closed.

PROCTACANTHUS, Macquart.

Dipt. Exot. i. (2) p. 236 (1838).

The following species are recorded from Australia:—

Proctacanthus durvillei, Macq., *l. c.* p. 237.

Proctacanthus spilogaster, Thoms., *Eugen. Resa*, Dipt. p. 469 (1860).

The type of *Proctacanthus posticus*, Walker, is a *Bathypogon* sp. (see 'Annals,' ser. 8, vol. x. 1912, p. 152).

Proctacanthus durvillei, Macquart.

Seen in Paris, 12. 4. 11.

Type a female from Tasmania in bad preservation.

Blackish. *Face* very narrow above, below wider and wholly taken up by a tubercle, covered with yellowish tomentum and very short pubescence. Moustache seems destroyed. *Palpi* with black bristly hairs. *Antennæ* destroyed. Head excised behind. Beard yellow. *Scutellum* with remains of golden tomentum. *Abdomen* apparently blue-black, shining. *Legs* fairly stout, black; femora with white hairs below; tibiæ and tarsi with many reddish bristles; tibiæ reddish.

Macquart described it thus, and states it came from Bay of Jervis, New South Wales (New Holland):—

Black. *Thorax* with yellow pubescence and three black stripes. *Tibiæ* testaceous.

Length 9 lines. ♀.

Face, moustache, and beard yellow. *Forehead* black, with slight grey tomentum and black hairs. *Abdomen* shining black with blue reflections. *Coxæ* and femora with whitish hairs; tibiæ and tarsi with yellow bristles. (*Wings* mutilated.)

Proctacanthus spilogaster, Thomson.

From Sydney.

Described as allied to *P. durvillei*, Macq.

Black, the *face*, spots on *thorax* and sides of *abdomen* yellow-haired; femora brown; tibiæ pale yellow, their base and apex and the tarsi black, these latter with the metatarsus yellow at base. *Wings* hyaline; veins brown, the transverse vein below the middle of discal cell.

Length, ♀, 17 mm.

ERAX, Scop.

Entomol. Carniol. p. 359 (1763).

Efferia, Coquill. Canada Ent. xxv. p. 175 (1893).

The following species are recorded from the Australasian Region, most of them from Australia:—

Erax albiventris, Macq., Dipt. Exot. Suppl. iv. p. 386 (1849).

Erax asiloides, Macq., l. c. p. 386, pl. viii. fig. 8.

- Erax caudatus*, Fabr., Syst. Antl. 171. 33 [*Dasypteron*] (1805). See Kertész, Cat. Dipt. p. 234 (1909), for further references.
Erax fuscipennis, Macq., Dipt. Exot. i. (2) p. 225.
Erax plantaris, Thoms., Eugen. Resa, Dipt. p. 468 (1869).
Erax salomon, Macq., l. c. p. 226.
Erax varymystaceus, Macq., Dipt. Exot. Suppl. ii. p. 56.

No specimens of this genus are present in the Brit. Mus. Coll. or Mr. French's Coll.

Erax albiventris, Macquart.

Type (a male) seen in Paris Museum, 12. 4. 11.

A large species, distinguished by the tomentose ashy-grey coloured sixth segment of *abdomen*, which is black, with yellowish-grey tomentose lateral spots.

Face broad, with a large tubercle. Moustache white, with black bristles intermixed. *Antennæ* black, the arista long, almost the length of antenna, the first two joints with white hairs. *Legs* stout, black; the tibiæ red, the hind pair broader on the apical half, with dense fulvous pubescence; the anterior femora with white hairs and no bristles, the others with black bristles. *Wings* dilated, with an appendix.

Macquart described it thus:—

Black. Thorax with ashy-grey pubescence and black stripes. Abdomen with broken silvery segmentations and the last segment but one silvery; underside white. Moustache above black, below yellow. Tibiæ testaceous. Wings dilated. ♂. Pl. viii. fig. 4.

Length 10 lines. ♂.

Palpi with black hairs. Beard white. Face with greyish-white tomentum; moustache yellowish, with black bristles above and at sides. Forehead and antennæ black. Thorax with the intermediate stripe bordered by a white line; sides with ashy-grey tomentum, changing to brownish. Abdomen with white hairs at sides; the second, third, and fourth segments bordered posteriorly with a silvery-white colour, widely interrupted in the middle, and comprising the whole width of the segments near the junction of the arches; fifth on posterior border almost wholly white; sixth entirely dull silvery white; seventh short, black, with a white spot on each side of the anterior border; underside white, with white hairs; genital organs large, brown. Legs black, with white hairs and black bristles; tibiæ testaceous, the anterior and intermediate ones black at apex; posterior pair a little swollen towards the middle behind. Wings dilated on external border, reddish grey.

From the east coast of New South Wales. Paris Museum.

Erax asiloides, Macquart.

Type probably destroyed.

Described as black. *Abdomen* with yellow segmentations. *Legs* black, posterior femora at base and tibiæ red. *Wings* with no appendix.

Length, ♀, 6 lines without ovipositor.

From the figure of wing this species hardly appears to belong to this genus.

Erax caudatus, Fabricius.

Placed by Schiner in this genus, but not known to him.

Described as a female, 11 lines.

Yellow, with brown stripes; *abdomen* black, with golden bands and light honey-yellow legs. Beard white. Moustache of seven yellowish bristles. *Wings* yellowish.

From Australia.

Erax fuscipennis, Macquart.

Described as black. *Thorax* golden-coloured, with black stripes. *Legs* black; tibiæ testaceous, black at apices. *Wings* brown.

Length $9\frac{1}{2}$ lines. ♂.

Erax plantaris, Thoms.

Described as brown. Allied to *Neoaratus hercules*, Wied., but *wings* not dilated in the middle and colour of *abdomen* different. *Antennæ* yellow. *Abdomen* yellow, at base olive. *Legs* chestnut; knees and tarsi black, posterior tibiæ yellow.

Length 23 mm. ♂.

From Australia.

Erax salomon, Macquart.

Seen in Paris Museum, 12. 4. 11.

Type a male. *Abdomen* half gone and in a bad state.

Face with a large protuberant tubercle, bearing the moustache. *Antennæ* black, the first two joints with black hairs, the third reddish, small and conical, with a long terminal arista almost the length of the entire antenna. *Legs* black, tibiæ testaceous; the bristles mostly black, some yellow ones on the femora. *Wings* dilated, neuration very similar to that of *Erax completus*, Macq. (see Dipt. Exot. i. (2) pl. ix. fig. 9), but the posterior branch of fork of third

vein does not curve towards the anterior border anything like so much, it ends just at the apex of wing; no appendix, but the rudiment of one is present.

Macquart describes it thus:—

Black. Abdomen (σ) black, the three apical segments silvery. Legs red; femora and posterior tarsi black.

Length $9\frac{1}{2}$ lines. σ .

Forehead and face with whitish tomentum; moustache black, mixed with white. Beard white. Antennæ black. Thorax anteriorly reddish grey, posteriorly slate-coloured, with black stripes and a black triangular spot on the posterior border. Abdomen whitish at the sides. Legs with black bristles, femora and the anterior and intermediate tibiæ with white hairs; posterior tibiæ black at apex. Wings a little brownish, dilated; the second submarginal cell with a very short appendix.

From the Solomon Islands, Port Praslin. M. Durville. Paris Museum.

Macquart also described, in Suppl. i. p. 210, a female from Sydney Island, Oceania, which he suggested might be the female of this species.

Erax varymystaceus, Macquart.

Described as having *abdomen* black, with sides and segmentations ashy grey. *Thorax* ashy grey, with black stripes. *Legs* black, tibiæ testaceous. *Wings* with an appendix.

Length 7 lines. ♀ .

From New South Wales.

Subgenera of *Asilus*.

Williston in his 1908 edition of 'Manual of N. American Diptera' considered many of the subdivisions of the old genus *Asilus* very vague and often not based on true generic characters, and placed them in his table of genera as subgenera. Prof. Hine in "Robberflies of the Genus *Asilus*," Ann. Ent. Soc. America, ii. no. 2, pp. 136-172, follows Williston.

GLAPHYROPYGA, Schiner.

Verh. zool.-bot. Ges. Wien, xvi. p. 674 (1866).

There are only two species recorded in this genus—*G. himantocerus*, Wied., from Brazil, for which Schiner formed the genus, and *G. australasiae*, Schiner, 'Novara' Reise, Dipt. p. 187 (1866), from Australia.

Length 7 lines.

The description of this reads suspiciously like that of *Heligmoneura lascus*, Walker; but this genus is distinguished by the broad third joint of *antennæ*, almost the same width throughout; this last particular is true of *H. lascus*, but the width is not very great. Schiner gives no idea of the proportion of the width to the length.

DYSMACHUS, Loew.

Dipt. Südafrik. p. 143 (1860).

Lophonotus, Macq., Dipt. Exot. i. (2) (1838), præocc. Steph. Lepid. 1829.

The genus distinguished by the mane-like bristles on dorsum of thorax is only represented in the Australasian Region as yet by one species from Melbourne, viz. :—

Dysmachus rudis, Walker.

List Dipt. pt. vii. Suppl. iii. p. 737 (*Asilus*) (1855).

Type (♂) from Melbourne (Baly Coll.).

A small dull-coloured species with hyaline wings. *Legs* black, tibiæ reddish.

Length 12 mm.

Face blackish, covered with dull yellowish tomentum: tubercle occupies centre of face, not very large; the moustache, consisting of strong black bristles, reaches to the antennæ; the oral aperture surrounded at sides by dull yellowish hairs, a few of these are intermixed with the moustache below. *Antennæ* blackish, the first two joints together not so long as the third joint, both with thick black hairs; the third joint long, cylindrical, with a short style-like arista. *Forehead* with some long black hairs, longest on the ocelligerous tubercle. Hind part of head with yellowish hairs and black incurved bristles at vertex. *Thorax* brownish, with stripes of yellowish tomentum, the black hairs long, bristly, disposed like a mane, reaching the whole length of the thorax. *Scutellum* paler coloured, with two long black bristles. *Abdomen* brownish, with some yellowish tomentum, black bristles on posterior borders of segments not reaching the centre, dorsum with short black pubescence, sides of basal segments with larger yellowish hairs. Genital organs black, fairly large and prominent. *Legs* black, the coxæ and underside of femora with long yellowish hairs, the tibiæ dull reddish on basal two-thirds, first joint of tarsi same colour; pubescence yellowish on the

tibiæ, elsewhere chiefly black. *Wings* hyaline, veins reddish, the small cross-vein beyond the middle of discal cell, the first posterior cell almost the same width throughout, the fourth closed.

MACHIMUS, Loew.

Linn. Ent. iv. p. 1 (1849).

This genus has not been recorded before from the Australasian Region; but two species are known from the Oriental Region, one being *Asilus atratulus*, Wlk., the type of which is in the Brit. Mus. Coll., from Java, a species with the legs black. I believe *Asilus antilco*, Walker, belongs to this genus, but it is in bad preservation. There is a female from Queensland which also appears to belong to this genus, but is a different species.

Machemus antilco, Walker.

List Dipt. ii. p. 458 (1849), et vii. Suppl. 3, p. 737 (1855).

Type (♀) from Port Stephen.

Length 15 mm.

A blackish species. *Face* black, with yellowish tomentum at sides, the tubercle distinct, the moustache consisting of numerous black bristles and hairs. *Antennæ* black, the first two joints with black hairs. The *thorax* black with grey stripes. *Legs* black; the tibiæ yellow, black at apex; the fore femora armed below with at least four stout short bristles and incrassate, on the hind femora these bristles are present but not so strong, and they are not so incrassate. *Wings* hyaline, the small transverse vein beyond the middle of discal cell. Abdomen very dirty and ovipositor not quite complete.

HELGIMONEURA, Bigot.

Thoms., Archiv. Entom. ii. p. 356 (1858).

Mochtherus, Loew, Linn. Ent. iv. p. 58 (1849) [præoc. Schmidt, Goebel Coll., 1846].

Neomochtherus, Ost.-Sack., Cat. Dipt. N. Amer. ed. 2, pp. 82 & 235 (1878).

The only species recorded from the Australasian Region are:—

- H. *lascus*, Wlk., List Dipt. ii. p. 466 [*Asilus*] (1849), et vii. Suppl. 3, p. 743 [*Asilus*] (1853); Hutton, Cat. New Zealand Dipt. &c. p. 30 [*Asilus*], et Trans. New Zealand Inst. xxxiii. p. 22 [*Stenoprosopis*] (1901).
- H. *lauta*, v. d. Wulp, Tijds. v. Ent. (2) vii. (xv.) p. 242 [*Mochtherus*] (1872), et Cat. Dipt. S. Asia. p. 96 [*Mochtherus*] (1896).

H. gnava, v. d. Wulp, *l. c.* p. 243, pl. xii. fig. 3 (1872), et xix. p. 174 (1876); *Ost.-Sack. Ann. Mus. Civ. Genova*, xvi. p. 423 [*Mochtherus*] (1882).

H. patruelis, v. d. Wulp, is recorded from Celebes.

Heligmoneura lascus, Walker.

Types (♂ ♀) from Colenso, New Zealand, also recorded by Hutton from Auckland and Wellington, New Zealand.

The types presented by Dr. Hooker are not identifiable, but there are male and female specimens from New Zealand (Col. Sinclair, 1845) and others (Col. Botton, 1854), which agree with the description given by Walker. This species and another new species from New Zealand, *S. meridionalis*, were placed by Hutton in the genus *Stenoprosopis*, containing species from America, with the exception of one from Bengal; this species, however, belongs to *Heligmoneura*, having the face very narrow, raised round the mouth, forming a very slight tubercle (in *Stenoprosopis* the face has no tubercle and the moustache is composed of only a few long hairs), and appears nearly allied to *H. gnava*, v. d. Wulp, from Java, Obi, Halmahera, and Waigiou. *Stenoprosopis meridionalis*, Hutton, *Trans. New Zealand Inst.* xxxiii. p. 23, will probably prove to be a species of *Heligmoneura*.

H. lascus is described as a small species with reddish-yellow legs, the abdomen black, with rather broad greyish or dull yellowish segmentations. Wings clear, grey at apex and round posterior border.

Length 12–13 mm.

Description from fresh specimens from New Zealand (*Cockayne*).

Male.—Face very narrow, blackish, covered with dense yellowish pubescence; tubercle small, extending the whole width of face above the oral opening; the moustache consists of glistening long white hairs which surround the oral opening, three or four yellow bristly hairs are visible above. Beard of sparse white hairs. Palpi reddish yellow with white hairs. Antennæ blackish, the second joint and base of third pale reddish yellow; the first joint long, narrow, the second joint broader and about a third shorter, both with yellowish hairs at sides; the third joint long, conical, with terminal arista two-thirds its length. Hind part of head with white hairs, reddish yellow and stouter at vertex. Thorax and abdomen with the ground-colour dull yellowish marked with brown stripes and spots, the thorax with black bristles at side. Scutellum dull yellowish, with two reddish-yellow bristles. Abdomen with

irregularly oval-shaped, blackish-brown, large spots on centre of each segment, reaching the anterior but not the posterior border, the last segment almost wholly black; the genital organs large, shining black; dorsum with sparse, yellow, short pubescence and longer hairs at sides, thickest on the first segment; underside almost wholly blackish, shining. *Legs* yellowish, shining, upperside of femora blackish, apices of tibiae and tarsal joints brown; bristles on legs chiefly yellowish or white. *Wings* hyaline, apex and posterior border grey; veins brown, the small transverse vein just beyond middle of discal cell; first posterior cell long and narrow, the fourth closed.

Female identical; the ovipositor long, black, including the seventh and eighth segments, compressed at sides.

[To be continued.]

XLVIII.—On Aporemodon, a remarkable new Pulmonate Genus. By G. C. ROBSON, B.A., British Museum (Natural History).

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IT is a familiar fact that certain genera of Mollusca, otherwise distinct anatomically, agree in possessing a simple patelliform shell. Such agreement in conchological character is found in genera as different in anatomy as *Acmaea*, *Siphonaria*, *Cocculina*, and *Ancylus*. The new genus, for which a name is here proposed, seems to constitute not only a fresh but also a novel example of this phenomenon; for it possesses, along with shell-characters that would approximate it to *Cocculina* or *Propilidium*, a radula which is not only of Pulmonate form, but also resembles very closely that of a definite genus of Helicoid Pulmonata.

The material on which this genus is founded consisted of six complete specimens and an additional shell, a selection from which has been presented by J. R. le B. Tomlin, Esq., to the British Museum. They were bequeathed to Mr. Tomlin by Surgeon-General Archer, who obtained them "on the beach" near Singapore some thirty years ago. No further information is forthcoming, in which any reliance can be placed, for determining the animal's habitat or station, though there can be no doubt that it is a marine form. The soft parts were so shrivelled after thirty years' dessication that all attempts to render them fit for sectioning were fruitless. It is a matter for considerable regret that the rest of the anatomy